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ABSTRACT

The Interactive Video Training and Development Activity of Troy State University (Troy, Alabama) is described in this report. The project has trained more than 30 people in the production of interactive video programs since its inception in 1983. Since 1985, training programs have been offered twice a year to individuals within and outside the university. Interactive programs have been produced in such areas as mathematics, chemistry, music, reading, writing, and art, and they have been used for instructional support and training. An interactive videodisc Student Information System was developed in 1986 to give students information about academics, the campus, and student activities, services, and organizations. Participants in the project are selected from all divisions of the university. Programs produced may be used on an Apple IIe interfaced with a BCD card to a video cassette recorder, an Apple IIe interfaced with a VMI card to a videodisc player, or an IBM InfoWindow System. As a result of the success of this activity, the university has established the Interactive Media Center to offer training and consultant services to others. The major problem at this point is lack of standardization of equipment. Appended are the training application form, contract, and the learning module evaluation sheet. (Author/SM)

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TROY STATE UNIVERSITY
INTERACTIVE VIDEO TRAINING AND DEVELOPMENT ACTIVITY

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and

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of TSU

1983-Present

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AASCU/ERIC Model Programs Inventory Project

The AASCU/ERIC Model Programs Inventory is a two-year project seeking to establish and test a model system for collecting and disseminating information on model programs at AASCU-member institutions--375 of the public four-year colleges and universities in the United States.

The four objectives of the project are:

- o To increase the information on model programs available to all institutions through the ERIC system
- o To encourage the use of the ERIC system by AASCU institutions
- o To improve AASCU's ability to know about, and share information on, activities at member institutions, and
- o To test a model for collaboration with ERIC that other national organizations might adopt.

The AASCU/ERIC Model Programs Inventory Project is funded with a grant from the Fund for the Improvement of Postsecondary Education to the American Association of State Colleges and Universities, in collaboration with the ERIC Clearinghouse on Higher Education at The George Washington University.

PART A

NARRATIVE REPORT

Abstract: The Interactive Video Training and Development Activity has trained more than 30 people in the production of interactive video programs since the activity was begun in 1983. With the assistance of Troy State University's Center for Developmental Education and Interactive Media Center, the training and production efforts in interactive media have continued beyond the federal funding of the Activity. Since 1985, training programs have been offered twice a year to individuals within and outside the University. Interactive programs (computer-controlled interactive tape and videodisc programs) have been produced in the areas of mathematics, psychology, music, counseling, chemistry, physics, nursing, writing, English, astronomy, reading and art. These learning programs have been used for instructional support and training. In addition to learning programs, an interactive videodisc Student Information System was developed in 1986 to provide information to students about academics, student activities, student organizations, student services, and the campus. The Interactive Video Training and Development Activity provides a model for training faculty in the development of interactive video programs by faculty and staff in higher education.

Introduction: This document will relate the history and development of Troy State University's interactive video training program, present a model for training faculty and staff in the development of interactive video, discuss the interactive video development process, present some conclusions and recommendations about training and development of interactive video, and discuss the future plans for development and utilization of interactive media.

Background: Having realized that video alone is a "oneway" instructional delivery medium which allowed for little or no interaction between video and the student, having explored computer assisted instruction which offered the interaction between student and machine but lacked the visual quality of video, and having a need to develop materials to support classroom and laboratory learning, Troy State University personnel recognized that the potential solution to all three needs might be found in development of student learning programs using the interactive video medium which brings the three media--video, computer and print--together into one medium.

Description of the Project of Program: In 1983, the Interactive Video Training and Development Activity began at Troy State University, Troy, Alabama, with financial aid from Title III, Part A, of the Higher Education Act of 1965, as amended. Prior to the grant, the University had researched the literature (which was almost non-existent at that time) on interactive video and assembled an interactive video system using an Apple IIe computer interfaced with a Panasonic NV8200 video cassette recorder using a BCD interace card in the Apple computer. A consultant from International Paper Company presented a two-day workshop.

on producing interactive video programs and the Interactive Video Training and Development Activity was begun. A prototype interactive video program was produced and used to show Administrators, Deans, Department Heads, faculty and staff what interactive video was. The interactive video technology is better understood through demonstration than through verbal communication about the technology.

Once the key people on campus were knowledgeable about interactive technology, a campus-wide committee was appointed to select participants for the Interactive Video Training and Development Activity. The Selection Committee had representation from all divisions of the University. The Director of the Title III Project and the Vice President for Academic Affairs sent correspondence to all faculty and staff members in the University inviting them to participate in the Training and Development Activity. As an application, prospective participants were required to complete a one-page outline or summary of what they proposed to produce using the interactive video technology (See Appendix for Application form). All were aware that a stipend would be paid to participants for training and production work. After the deadline for receipt of the outlines, the Selection Committee prioritized the applications on the basis of the feasibility of the topic and proposal, numbers of students who could benefit from the program, long-range worth of the program to the curriculum of the University, and the consistency of the level of the target audience with the level of the proposed program. The authors of the top ten proposals were invited to participate in the first training program for producing interactive video learning programs to support regular classroom work in various disciplines. Each potential participant received a letter of congratulations on being selected for the Activity and two copies of an agreement (See Appendix). The agreement was to be read, signed and returned to the Director of the Activity if the individual selected wished to participate. Because the applications list was prioritized, those not selected were notified that they were alternates. When a drop-out occurred, an alternate was selected as a replacement.

The agreement (shown in Appendix) outlined what was expected of each participant. Each participant was to complete the training program in production of interactive video, to produce two acceptable learning programs, and to complete this work in a timely fashion. This agreement was used initially in this Activity and with some modifications, it has served as the agreement for production of subsequent interactive learning programs.

The training program for the first year of the Activity was held during the summer. Drs. Diane Gayeski and David Williams of Omni-Com Associates, Ithaca, NY, served as consultants for training and development of our first interactive learning programs. After a two-day training session with the Consultants, participants began developing their interactive programs. Throughout the first year and thereafter, meetings of participants were scheduled on a regular basis for review of programs produced, for discussion and solution of program problems, and for peer support of each others' work. Telephone conferences were held

with Drs. Gayeski and Williams, and completed programs were reviewed by these Consultants for evaluation, suggestions and feedback. Evaluations were also made by peer participants and by the Activity Director. An example of the evaluation form can be found in the appendix.

During the second year of the federally-funded portion of this Activity, four of the participants from the first year agreed to continue producing interactive learning programs and to serve as consultants to train participants during the second year. The four faculty members working with the Director of the Activity, trained five additional faculty members during each of the second and third years of the federal project. Having a cadre of in-house consultants was a distinct advantage for the new participants. Each consultant was assigned to work with one participant after a multi-day training session, and the group met at least monthly to share programs and solve production problems that might have occurred. In addition to the faculty consultants, the University's television staff and facilities were used in the video tape production necessary for producing quality interactive video programs. Student assistants were hired to assist in video tape production.

The following outline represents the current five-day training program which is available to individuals within the University as well as to individuals from business, industry, the military, or other education institutions who wish to learn how to produce interactive video programs.

Day 1:

- 1) Analysis for Interactive Video Programs
- 2) Basic Lesson Designs for Interactive Video
- 3) Flowcharting for Interactive Video
- 4) Introduction to PILOT
- 5) Basic Programming Commands in PILOT
- 6) Programming of an Interactive Video Program
- 7) Selection of Topics for Group Interactive Video Productions

Day 2:

- 1) Address Coding for Interactive Video Tape
- 2) Logging Scenes and Obtaining Frame Numbers
- 3) Advanced Programming in PILOT
- 4) Practice in Advanced Programming in PILOT
- 5) Completion of Flow Chart for Group Interactive Video Production
- 6) Scripting of Group Interactive Production

Day 3:

- 1) Three groups are formed and work hourly on a rotating basis in the TV studio, Editing Studio, and Programming Lab as follows:

GROUP 1	GROUP 2	GROUP 3
Tape	Program	Program
Edit Tape	Tape	Program
Program	Edit Tape	Tape
Program	Program	Edit Tape

- 2) Complete address coding, scene logging and programming of the Group Interactive Video Tape Production.

Day 4:

- 1) Show & Tell of Group Interactive Video Tape Productions
- 2) Programming in PC PILOT for IBM
- 3) Programming in IBM InfoWindow PILOT
- 4) Designing Touch Screen Areas
- 5) Practice with IBM InfoWindow PILOT

Day 5:

- 1) Complete IBM InfoWindow Interactive Videodisc Productions
- 2) Premiere Showing of Interactive Videodisc Productions
- 3) Discussion of Applications of Various Interactive Video Formats
- 4) Questions, Answers & Evaluation
- 5) Individual Consultations

This training program was developed and revised over a period of five years, and central to the training program is an extensive training manual which contains information and materials necessary for development of quality interactive media programs. The manual includes sections on: Analysis, Design & Flow Charts; Script Writing; Programming using PILOT-based languages; Practice in the PILOT language and in producing interactive video; Sections for Apple SuperPILOT, IBM PC PILOT, and InfoWindow PILOT; and Other information about interactive media. There is a minimal fee charged for training of individuals outside the University.

After completing the training program, University faculty and staff proceed to produce interactive programs. Programs are produced for student use on systems consisting of either an Apple IIe interfaced with a BCD card to a video cassette recorder, an Apple IIe interfaced with an Allen VMI card to a videodisc player, or an IBM InfoWindow System. Interactive video systems are available in the University Library and in various Centers and Departments around campus. Systems have been placed in accordance with participation of faculty and staff.

Interactive programs have been produced in a variety of disciplines including mathematics, psychology, music, counseling, physics, chemistry, nursing, writing, English, astronomy, group dynamics, art and reading. Titles include: Safety in the Science Laboratory (interactive videodisc program with program and video produced by faculty developers); Interactive Videodisc Student Information System (interactive video disc program designed to provide video and computer generated information about all areas of the University with program and video produced by University faculty, staff and students); Tutor Training Programs I and II; Learning Trumpet Fingering; Learning French Horn Fingering; Clarinet Modules I and II (for diagnosing and correcting poor playing habits); Simplification of Rational Expressions; Factoring Special Forms; Introduction to Operant Conditioning; Behavior Modification; Interviewing Techniques for Counselors; The Effect on Temperature on some Chemical and Physical Properties; Amusement Park Physics: Circular Motion & Conservation of Energy; Drug Dosages; Glassware for Chemistry; Nucleic Acids; Observational Astronomy; Identifying Unknown Chemical Compounds;

One and Two Dimensional Motion; One Student Simulation and Two Student Simulation for Psychology; Being an Effective Committee Member; Nursing Validation; Constellations; Exam for Art 133--General Studies Visual Art Course; The Use of Adjectives and the use of the Prepositional Phrase (these programs use the VCR to read the printed screen or they can be used as computer only programs); and interactive computer only programs including Subject-Verb Agreement; Vocabulary-Test on Antonyms, Punctuation of Sentences, Phrasing Problems I-Omitted Words, Phrasing Problems II-Omitted Ending, Phrasing Problems III-Word Choice, and Phrase Problems IV-Sentence Structure.

University personnel produced these interactive programs using various equipment configurations. Programs were produced using the Apple IIe Computer interfaced with a BCD interface device to a Panasonic AG-6200 video cassette recorder or the Apple IIe Computer interfaced with a VMI interface device to a Pioneer LD-V4000 videodisc player. Some of the programs produced after 1987 have been developed with the IBM InfoWindow System interfaced with a Pioneer LD-V6000A or LD-V6010 videodisc player. The software used with the Apple system is Apple SuperPilot, and the software used with the IBM InfoWindow system is InfoWindow PILOT. Both software packages--the one for the Apple and the one for the IBM--are programming languages not systems. By the second year of the Activity, it was obvious that the programming systems of that time period were not adequate to meet the many needs and demands of the learning support programs professors sought to develop. There was a lack of flexibility and there was needless tedium in dealing with programming systems which programming languages allowed developers to overcome.

As a result of the success of this Activity, the University has established the Interactive Media Center which provides training and consultant services to others--business, industry, the military, and other education institutions. Also, personnel of the University have been instrumental in organizing a statewide Interactive Media Special Interest Group (IMSIG) within the Alabama Council for Computer Education. The IMSIG meets and shares information about interactive media including interactive video, CD-I, CD-ROM, and other media which are interactive and hold potential for improving education and training.

Future plans include construction of outcomes assessment exams at the rising junior level and development of interactive learning programs to assist students in preparing for these exams and in remediating any deficiencies which may be identified through outcomes assessment. This proposed plan may result in interactive programs which cover the equivalent of entire courses even though at the present time only interactive learning programs to support traditional courses have been developed.

Results: The Interactive Video Training and Development Activity has resulted in the production of over 30 interactive programs which are available for use by students on the University in the Library and in various Centers around campus. Over 30 people have been trained in

production of interactive video programs and many of these professors continue to produce interactive programs and are themselves leaders in interactive video applications in their content areas. An Interactive Video Student Information System was developed which has been running in the Student Center for over two years and which provides information about all phases of the University. The University's Interactive Media Center offers training programs twice a year--one in August and one in December--to train others in production of interactive video programs. The University has produced two videodiscs and has assisted other institutions in the production of interactive programs and videodiscs. A well-constructed, model training program for interactive video production has been developed which provides hands-on experience in development of interactive video tape and videodisc programs during the time span of 5 days.

In addition to the tangible results listed above, the Interactive Video Training and Development Activity has provided some intangible results. A pride of accomplishment has been evident among professors who have successfully completed interactive programs in their disciplines. Some participants in the activity who had never used microcomputers previously are now experts in using microcomputers not only for interactive video production but also for other uses.

Conclusions and Recommendations: Contrary to most suggestions that interactive video must be produced through a team effort, we have found that it is possible to train individuals in all phases of development of interactive video from videotape production to computer programming so that they can produce an interactive video program on their own. Peer support and consultant assistance are helpful but not essential to success in producing interactive video programs. Not all professors are interested in producing computer assisted interactive video programs, but those who are should be rewarded and encouraged to continue their work.

Interactive video tape still holds tremendous potential for development of support learning programs. Producing a video tape is less expensive than pressing a videodisc. Video tape can be shot and used with a minimum of editing since the computer program can edit out the portions not needed for an interactive video program. We have been able to shoot a video tape on one day and have the interactive program ready on the next day. Video tapes can be revised; whereas, videodiscs' content cannot be revised. Using video tape allows for production of programs unique to a particular University or institution; whereas, with videodiscs, if one doesn't plan to press his own, then he must be content with repurposing someone else's disc. The primary advantage of videodisc over video tape is that an interactive videodisc program accesses video in a matter of seconds while a video tape interactive program must search linearly to find the appropriate video, and search time can be considerable. Many students are not disturbed by the search time, and in fact, they may utilize search time for thinking and internalizing concepts and knowledge. By using certain programming techniques, a

programmer can disguise the search time. Others contend that a professionally pressed videodisc is more durable than videotape, but only time can prove this contention, and the videodisc technology is so new we cannot attest to the durability at present. The University has, however, buried one of its videodiscs in a time capsule which is scheduled to be opened in the year 2037, so someone may be able to attest to the durability or lack of that quality in videodiscs in fifty years.

The major problem in interactive video development now is a lack of standardization of equipment. Because of this lack of equipment standard, interactive video programs we produce with our Apple Systems cannot be readily used on our IBM InfoWindow Systems. We have overcome some of these standardization problems by using PILOT-based languages with each system. We can convert SuperPILOT to InfoWindow PILOT with a minimum of modification in our programs.

External evaluators of the Activity made the following statements in their final report.

The external evaluators have viewed approximately three-quarters of the modules produced under this activity over the three-year project and find each to be of very good to excellent quality utilizing the criteria of the U.S. Department of Education Guide. There is a significant spirit of enthusiasm and dedication among the faculty and trainers participating in this Activity. A level of sophistication and expertise in the computer interactive video and video disc technologies at TSU will both strengthen the educational program of the University and indirectly benefit many other Alabama institutions because of the willingness of the TSU faculty to assist sister institutions. The external evaluators commend the faculty and staff for this exemplary attitude.

We have met with considerable success in the development of interactive video tape and videodiscs programs. Through observation we have found what type programs work best with students, and we have learned basic design techniques to apply to various learning situations. What we recommend is more development of interactive video programs and more comparative, controlled research to determine how effective interactive video learning is in comparison with traditional methods of teaching and learning.

APPENDIX

Please return to Angela C. Roling by February 14, 1985

APPLICATION FOR TRAINING AND DEVELOPMENT OF LEARNING PROGRAMS
(MODULES) USING INTERACTIVE VIDEO AND MICROCOMPUTERS

NAME: _____ TELEPHONE: (Home) _____ (Office) _____

ADDRESS: _____

HAVE YOU WORKED WITH A COMPUTER? _____ TOPIC(S) TO BE DEVELOPED: _____

COURSE(S) TO WHICH TOPIC IS RELATED: _____

Please provide a brief summary or outline of what you propose to develop. (Use additional pages if needed).

If I am selected to participate in this training and development program, I agree to attend all required training sessions and develop at least one training program by fall quarter, 1985 and at least one more program by winter quarter, 1986. In return, I will receive a stipend for my work and training.

(Signature of Applicant)

AGREEMENT

Agreement dated _____ between _____, an individual, hereinafter called the Offeree and Troy State University hereinafter called the University.

1. OFFER. The University hereby tenders an offer and the Offeree hereby agrees to be bound by an offer the terms and conditions of which are hereinafter described and set forth.
2. PURPOSE. The purpose of this contract is the production of two acceptable learning programs hereinafter referred to as learning modules. To be acceptable a learning module must be approved by the Activity Director for the Learning Module Development Activity. The learning modules and any and all remuneration accruing as a result of the learning modules regardless of the form or nature of the remuneration becomes the sole property of the University to use or not to use as the Activity Director for the Learning Module Activity decides.
3. COMPENSATION. A payment totaling _____ to be earned only upon the timely production of two acceptable learning modules.
4. DUTIES. Offeree must attend the equivalent of eight days of training sessions. One day of training will last approximately eight hours. Training days include June 20, 1985 and June 21, 1985. Other training sessions will be scheduled as needed during summer, fall, and winter quarters, 1985-86.
5. TIME. The learning modules should be finished and approved prior to the beginning of the first day of the Troy State University winter quarter of 1986. Both parties agree time is of the essence.
6. CONTRACT TERMS TO BE EXCLUSIVE. The written agreement contains the sole and entire agreement between the parties and shall supersede any and all other agreements concerning the above stated purpose of this contract.
7. WAIVER OR MODIFICATION INEFFECTIVE UNLESS IN WRITING. It is further agreed that no waiver or modification of this agreement or of any covenant, condition or limitation of this agreement shall be valid unless in writing and signed by the party to be charged therewith.
8. ASSIGNMENT. The Offeree may not assign any duty, responsibility, or requirement of this agreement or any right arising out of this agreement.
9. INDEMNIFICATION. Troy State University does not indemnify the Offeree in any form or fashion for any legal or other liability arising as a result of the Offeree's performance of this agreement.
10. REPAYMENT. In the event the Offeree fails to meet the requirements of this contract, including the above described time requirements, repayment of all monies or a portion of all monies paid by the University to the Offeree must be repaid by the Offeree. Repayment must be made by a one-time payment by the Offeree or by payroll deductions over a period of four months beginning after the month of March, 1986, at the election of the University. Should repayment become necessary, the Offeree, by signing this agreement, gives the University express and specific authorization to withhold the required repayment by instituting payroll deductions from the Offeree's University salary.
11. CHOICE OF LAW. The laws of Alabama shall govern this agreement.

IN WITNESS WHEREOF, the parties affix and set out their signatures below on the date first above written and by so affixing their signature do verify that he or she is the person so signing having read and having fully and completely understood the provisions, requirements, conditions and limitations of the above defined agreement.

(Offeree)

I do hereby verify that the above is my true and legal signature.

Title:

I do hereby verify that the above is my true and legal signature and by so signing I do affirm that I have the legal capacity and power to bind Troy State University to the above agreement.

LEARNING-MODULE EVALUATION

Title: _____ Medium: _____ Level: _____

A. CONTENT Subject/Topic: _____

1. The purpose of the materials is defined. _____ Yes _____ No
2. The materials are significant to the educational goals. _____ Yes _____ No
3. The materials are compatible with the instructional program. _____ Yes _____ No
4. The content is accurate. _____ Yes _____ No
5. Stereotyping and bias are absent. _____ Yes _____ No

B. INSTRUCTIONAL QUALITIES OF IMPORTANCE TO TEACHERS AND STUDENTS

1. The directions are clear and understandable. _____ Yes _____ No
2. The response required is appropriate. _____ Yes _____ No
3. The feedback from responses is effective and appropriate. _____ Yes _____ No
4. The program is easily used. _____ Yes _____ No
5. The physical appearance of the program is good. _____ Yes _____ No

C. INSTRUCTIONAL QUALITIES OF IMPORTANCE TO TEACHERS

1. Can the program be adapted to various teaching approaches and courses. _____ Yes _____ No
2. The program is durable. _____ Yes _____ No
3. There are no mechanical and technical errors. _____ Yes _____ No

D. DESIGN CONSIDERATIONS

1. There was teacher involvement in designing the program. _____ Yes _____ No
2. There is active student involvement. _____ Yes _____ No
3. The student controls the interaction. _____ Yes _____ No
4. There is graphics, animation, color and/or sound. _____ Yes _____ No
5. The materials are personalized rather than neutral. _____ Yes _____ No
6. The materials are (self-contained, require supplementary materials). _____ Yes _____ No
7. The materials report on student performance. _____ Yes _____ No

OVERALL EVALUATION:

_____ Excellent _____ Very Good _____ Good _____ Fair _____ Poor _____ Not useful